



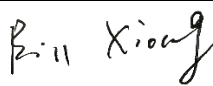
TEST REPORT

According to ANSI/IES LM-80-15
For

Hongli Zhihui Group Co.,Ltd. Guangzhou Branch

Room 316, Building 2, No.1, Xianke Yi Road, Huadong Town, Huadu District, Guangzhou, China

**Model: HL-AS-2835HW-2C-S1-08-PCT-
HR5**

Report Type: 6000 Hours Test Report	Product Type: LED Package
Test Engineer:	Pote Wang
Report Number:	RSZ181027501-10-M1
Test Date:	2018-10-27 to 2019-07-04
Report Date:	2019-08-07
Reviewed By:	Bill Xiong / EE Engineer 
Revised Note:	The previous report RSZ181027501-10 is replaced by this report on 2019-08-07
Test Facility:	Test facility was located at No.69,Pulongcun ,Puxihu Industrial Area, Tangxia , Dongguan, Guangdong, China.
Prepared By:	Bay Area Compliance Laboratories Corp. (Dongguan). No.69,Pulongcun ,Puxihu Industrial Area, Tangxia , Dongguan, Guangdong, China. Tel: +86-0769-86858888 Fax:+86-0769-86858588
Accreditation:	The IAS Accreditation Number TL-460.

Note: The test data was only valid for the test sample(s). This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.



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HL-AS-2835HW-S1-08L-PCT-HR5(R9)	90	2700K	1	1	0.0510	861.11	150	/	150
HL-AS-2835DW-S1-08-PCT-HR5	90	2700K	1	1	0.0510	861.11	150	/	150
HL-AS-2835DW-S1-08-PCT-HR5(R9)	90	2700K	1	1	0.0510	861.11	150	/	150
HL-AS-2835DW-S1-08L-PCT-HR5	90	2700K	1	1	0.0510	861.11	150	/	150
HL-AS-2835DW-S1-08L-PCT-HR5(R9)	90	2700K	1	1	0.0510	861.11	150	/	150
HL-AS-2835D90W-2C-S1-08-PCT-HR5-CS-KY	90	2700K	2	1	0.1021	301.84	150	0.15	150
HL-AS-2835D90W-2C-S1-08-PCT-HR5 -KY	90	2700K	2	1	0.1021	301.84	150	0.15	150
HL-AS-2835D90W-2C-S1-08L-PCT-HR5-CS-KY	90	2700K	2	1	0.1021	301.84	150	0.15	150
HL-AS-2835D90W-2C-S1-08L-PCT-HR5 -KY	90	2700K	2	1	0.1021	301.84	150	0.15	150
HL-AS-2835DW-2C-S1-08-PCT-HR5-CS-KY	90	2700K	2	1	0.1021	301.84	150	0.15	150
HL-AS-2835DW-2C-S1-08-PCT-HR5 -KY	90	2700K	2	1	0.1021	301.84	150	0.15	150
HL-AS-2835DW-2C-S1-08L-PCT-HR5-CS-KY	90	2700K	2	1	0.1021	301.84	150	0.15	150
HL-AS-2835DW-2C-S1-08L-PCT-HR5 -KY	90	2700K	2	1	0.1021	301.84	150	0.15	150
SL-*D2835FTA-21EA*	90	2700K	2	1	0.1021	861.11	150	0.15	150
SL-*D2835FTA-21EA*H	90	2700K	2	1	0.1021	861.11	150		

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system was calibrated by halogen reference lamp. The ambient temperature during test was set to $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$, RH <65%. The temperature measurement point was located in the sphere and the temperature was detected by a temperature probe.

The uncertainty of the light output measurements is $U=1.59\%$ ($K=2$), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is $U=21\text{K}$ ($K=2$), at the 95% confidence level.

The uncertainty of the temperature is $U=0.8671^{\circ}\text{C}$ ($K=2$), at the 95% confidence level.

1.7 Statement of Traceability

Bay Area Compliance Laboratories Corp. (Dongguan) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

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1.8 Sample Set

Data Set 1: 85°C, 150mA

Part Number: HL-AS-2835HW-2C-S1-08-PCT-HR5
Number of Units: 25
Case Temperature: >83°C
Ambient Temperature: >80°C
Life Test Drive Current: 150mA
Measurement Current: 150mA

Data Set 2: 105°C, 150mA

Part Number: HL-AS-2835HW-2C-S1-08-PCT-HR5
Number of Units: 25
Case Temperature: >103°C
Ambient Temperature: >100°C
Life Test Drive Current: 150mA
Measurement Current: 150mA

2 - Summary of Test Result

Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration			Reported TM -21 L ₇₀ Lifetime
1	25	0	1000hrs	6000hrs	2.352E-06	1.003	>36000 hours
2	25	0	1000hrs	6000hrs	3.077E-06	1.003	>36000 hours

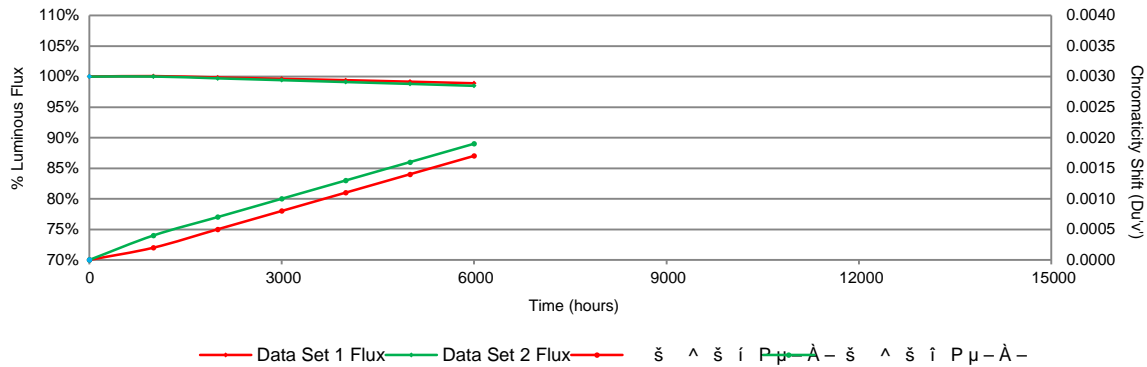
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

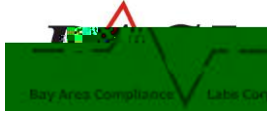
Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	100.08%	99.85%	99.63%	99.41%	99.16%	98.90%
2	100.02%	99.72%	99.42%	99.11%	98.81%	98.49%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	0.0002	0.0005	0.0008	0.0011	0.0014	0.0017
2	0.0004	0.0007	0.001	0.0013	0.0016	0.0019

Average Lumen Maintenance and Chromaticity Shift VS. Time

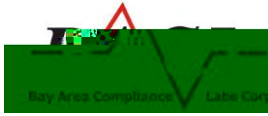




3 - Test Data

3.1 Data Set 1, 85°C, 150mA (Lumen Maintenance)

No.	Lumen Maintenance (%)						
	% 0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	112.1	99.91	99.73	99.46	99.38	98.93	98.75
2	108.8	100.18	99.82	99.45	99.26	99.08	98.62
3	112.8	100.09	99.91	99.73	99.47	99.29	98.94
4	111.8	100.18	99.91	99.55	99.28	99.02	98.75
5	111.9	100.09	100.00	99.91	99.64	99.37	99.29
6	113.0	100.35	100.09	99.82	99.73	99.56	99.38
7	109.9	100.18	100.09	100.00	99.73	99.45	99.09
8	110.5	100.27	99.82	99.64	99.55	99.37	99.19
9	111.5	100.27	100.09	99.82	99.55	99.37	99.01
10	110.7	100.18	100.00	99.73	99.64	99.19	99.01
11	111.7	100.18	100.09	99.91	99.64	99.37	99.10
12	112.0	99.82	99.64	99.38	99.29	99.11	98.84
13	110.6	100.27	100.09	100.00	99.91	99.73	99.37
14	111.1	100.18	100.00	99.91	99.82	99.55	99.28
15	109.6	99.82	99.54	99.09	98.81	98.63	98.36
16	112.0	99.91	99.46	99.20	98.93	98.66	98.48
17	110.8	100.09	99.64	99.37	99.10	98.83	98.47
18	111.6	99.82	99.46	99.10	98.84	98.66	98.48
19	112.5	100.09	99.82	99.47	99.02	98.93	98.76
20	111.7	99.91	99.73	99.64	99.37	99.10	98.75
21	111.7	100.09	99.82	99.55	99.46	99.28	99.19
22	111.6	100.09	99.91	99.82	99.46	99.28	98.84
23	112.2	100.27	100.09	100.00	99.64	99.20	99.02
24	111.7	99.91	99.64	99.37	99.10	98.84	98.48
25	112.3	99.91	99.82	99.73	99.55	99.29	99.11
Avg.	111.4	100.08	99.85	99.63	99.41	99.16	98.90
Med.	111.7	100.09	99.82	99.64	99.46	99.20	98.94
st dev	1.0	0.16	0.20	0.28	0.30	0.30	0.31
Min.	108.8	99.82	99.46	99.09	98.81	98.63	98.36
Max.	113.0	100.35	100.09	100.00	99.91	99.73	99.38



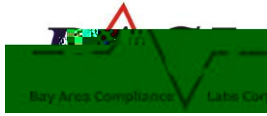
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3.2 Data Set 1, 85°C, 150mA (Forward Voltage)



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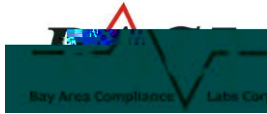


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3.4 Data Set 2, 105°C, 150 (Lumen Maintenance)

No.	%		Lumen Maintenance (%)			
	Ohr(Initial)	1000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	110.9	99.91	99.37	99.19	99.01	98.74
27	110.9	99.91	99.19	99.10	98.74	98.38
28	111.8	100.00	99.37	98.93	98.57	98.03
29	111.4	100.18	99.37	99.01	98.65	98.20
30	110.8	100.18	99.46	99.10	98.74	98.29
31	111.5	99.91	99.37	99.10	99.01	98.65
32	110.7	99.82	99.28	98.92	98.64	98.28
33	109.6	100.27	99.45	99.18	98.91	98.54
34	111.7	99.91	99.10	98.66	98.48	98.39
35	110.2	100.00	99.27	98.91	98.55	98.19
36	111.3	99.91	99.46	99.01	98.56	98.29
37	109.9	100.09	99.55	99.18	98.91	98.54
38	108.3	99.91	99.26	98.98	98.71	98.34
39	111.1	100.18	99.73	99.46	99.19	99.01
40	108.3	100.18	99.91	99.82	99.54	99.26
41	111.2	99.73	99.01	98.65	98.38	98.02
42	111.9	99.82	99.11	98.84	98.57	98.30
43	110.5	100.09	99.64	99.28	98.73	98.46
44	110.2	100.09	99.36	99.09	98.82	98.46
45	112.0	100.09	99.38	98.93	98.75	98.39
46	112.0	99.91	99.46	99.20	98.84	98.66
47	111.0	99.91	99.55	99.28	98.92	98.83
48	108.9	100.28	99.54	99.36	98.99	98.62
49	111.4	100.09	99.64	99.46	99.28	98.92
50	111.3	100.09	99.55	99.19	98.83	98.56
Avg.			99.42	99.11	98.81	98.49



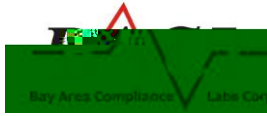
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3.5 Data Set 2, 105°C, 150mA (Forward Voltage)

No.	Forward Voltage (V)						
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
26	6.431	6.430	6.428	6.424	6.420	6.422	6.416
27	6.368	6.410	6.389	6.386	6.380	6.385	6.385
28	6.352	6.370	6.369	6.369	6.367	6.367	6.361
29	6.359	6.372	6.365	6.367	6.365	6.373	6.361
30	6.369	6.313	6.311	6.315	6.319	6.311	6.307
31	6.297	6.319	6.319	6.314	6.314	6.314	6.308

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3.6 Data Set 2, 105°C, 150mA (Chromaticity Shift)

No.	CCT(K)	O %						
		0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
					6	0.0009	0.0011	0.0014

